Problem J
Mediation

You are the mayor of a tree-structured city with N districts, numbered from 1 to N, connected by $N-1$ roads, numbered from 1 to $N-1$. Road i connects district U_i and district V_i bidirectionally with weight W_i. Two districts S_1 and S_2 have been marked as **mediator districts**. The travel cost between district x and district y, denoted by $d(x,y)$, is the minimum sum of weights of the roads you need to pass through.

Whenever a conflict arise between any two districts, the mediator districts are required to travel to the conflicting districts. The **mediation cost** for two conflicting districts u and v, denoted by $M(u,v)$, is the maximum travel cost of the mediator districts to the nearest conflicting district. Formally, $M(x,y)$ can be calculated as follows.

$$M(u,v) = \max(\min(d(u,S_1), d(v,S_1)), \min(d(u,S_2), d(v,S_2)))$$

Calculate the sum of mediation cost $M(u,v)$ over all $1 \le u < v \le N$.

Input

The first line contains three integers: N, S_1, and S_2 ($2 \le N \le 200\,000$; $1 \le S_1 < S_2 \le N$).

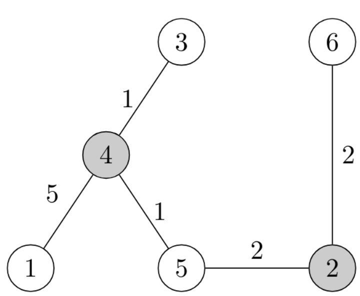
The next $N-1$ lines contains integers U_i, V_i, and W_i ($1 \le U_i < V_i \le N$; $1 \le W_i \le 100$) describing an edge.

Output

Output the sum of mediation cost in a single line.

Sample Input 1	Sample Output 1
6 2 4 1 4 5 3 4 1 4 5 1 2 5 2 2 6 2	35

Explanation of Sample 1: The city is illustrated as follows.



The values of $M(u, v)$ over all $1 \leq u < v \leq N$ are presented as follows.

u \ v	1	2	3	4	5	6
1		3	4	3	2	5
2			1	0	1	3
3				3	2	2
4					2	2
5						2

The sum of all $M(u, v)$ is 35.